

Date: Thursday, 11/23/2006 11:54:21 AM
 User: Kim Johnston

Process Sheet

Customer : CU-DAR001 Dart Helicopters Services Drawing Name : SKIDTUBE
 Job Number : 29665A
 Estimate Number : 11546
 P.O. Number :
 This Issue : 11/23/2006 S.O. No. :
 Prsht Rev. : NC
 First Issue : 11 Type : LANDING GEAR
 Previous Run : 29664A
 Part Number : D204635041
 Drawing Number : D2590 REV C
 Project Number : N/A
 Drawing Revision : C
 Material :
 Due Date : 12/12/2006 Qty: 1 Um: Each
 Written By :
 Checked & Approved By : JA 06 11 23
 Comment : Est Rev: F 02.08.28 FP was QC5 in Step 27; Added QC5 to Step 30 KJ

Additional Product

Job Number:



5 21

Seq. #: Machine Or Operation: Description:

1.0 D25001190 Ex'n -1' Beam Tube 4"



Comment: Qty.: 1.0400 Each(s)/Unit Total: 1.0400 Each(s)

Pick:

| Qty | Part Number | Description | Batch |
|-----|-------------|---------------------|-------|
| 1 | D2500-1-190 | Skid Tube Extrusion | 24669 |

① JB 06-12-01

2.0 D2597 204 Web



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Pick:

| Qty | Part Number | Description | Batch |
|-----|-------------|-------------|-------|
| 1 | D2597 | 204 Web | 27675 |

① JB 06/11/30

3.0 LANDING GEAR 1 LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1- Inspect mat'l D2500-1-190 for damage

JB 06/11/30

①

2-Cut D2500-1-190 per Dwg D2590 .Debur ends

JB 06/11/30

①

3-Drill pilot holes using drill jig DT 8149 & DT8711-1&-2

JB 06/11/30

①

4-Acid etch and Alodine tube per QSI 005 4.1

JB 06/11/30

①

5-Open holes to 0.500" as per Dwg D2590 without cutting fluid

PM 06-11-30

6-Countersink holes as per Dwg D2590 without cutting fluid

PM 06-11-30

7-Debur and blow out all chips from inside of tube

PM 06-11-30

| W/O: | | WORK ORDER CHANGES | | | | | | |
|------|------|--------------------|--|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
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Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | | |
|------|------|----------------------------------|----------------------|---------------------------------|-----------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action | | Section B | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | | Sign & Date | | | |
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Job Number: 29665A

Part Number: D204635041

Job Number:



Seq. #:

Machine Or Operation:

Description :

8-Bond web in place per QSI 015. Allow 12 Hrs. cure time before cutting

Pick:

Qty Part Number Description Batch
A/R Sikaflex-291 M 102 107
Sikaflex expire date: 07/03/01
Start Time: 7:40
Fin Time: 10AM

4.0

BENDING

BENDING MACHINE



Comment: BENDING MACHINE

Bend as per program D2590.C on CNC Bender

DP 6-12-4

PTC

5.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Cut tubes as per Dwg. D2590 .

2-Deburr ends after cutting. Remove alodine from around holes

6.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

7.0

D25763

Step (Machining Detail)



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty Part Number Description Batch
1 D2576-3 Step _____

8.0

D2579

Crossbolt Spacer



Comment: Qty.: 17.0000 Each(s)/Unit Total : 17.0000 Each(s)

Pick:

Qty Part Number Description Batch
17 D2579 Spacers _____

| W/O: | | WORK ORDER CHANGES | | | | | | |
|------|------|--------------------|--|----|------|-----|-------------------------------------|--------------------------|
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| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | | |
| 6-12-4 | 4 | Extrusion broke, while Bending. | <i>[Signature]</i> Q51042 | Scraps. des trap. No replace | <i>[Signature]</i> 7-6-11 | | <i>[Signature]</i> 07-01-11 | <i>[Signature]</i> Q51042 | <i>[Signature]</i> 06-12-11 |
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Part Number: D204635041

Job Number:



Seq. #:

Machine Or Operation:

Description :

9.0

LARGE FAB 1

LARGE FABRICATION RESOURCE 1



Comment: LARGE FABRICATION RESOURCE 1

- 1-Prepare tube for welding D2576-3 StepRemove alodine as required.
- 2-Weld step D2576 as per Dwg. D2590 and QSI 004
A/R Aluminum Rod
- 3-Weld crossbolt spacers D2579 as per Dwg. D2590 and QSI 004. For D2579 spacers, weld one side, pass 3/8" drill, weld other side, pass 3/8" drill
A/R Aluminum Rod
- 4-Grind welds as per Dwg D2590 Grind flush ridge made from bending
- 5-Drill holes for wearplates using DT 8218 Open holes to 19/64", adjust stopper not to hit crosstubes. Deburr
- 6-Counterbore crossbolt spacers to 7/16" ID x 1.0" deep as per Dwg D2590. Deburr holes
- 7-Drill pilot holes for aft cap using DT 8215 Open holes to #6 Drill bit. Deburr
- 8-Drill pilot holes for Tow ring using DT8091, open to .640"and Deburr

10.0

QC9

VISUAL WELDING INSPECTION



Comment: VISUAL WELDING INSPECTION

11.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

12.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Powder Coat White (Ref: 4.3.5.2) as per QSI 005 4.3

13.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

| W/O: | | WORK ORDER CHANGES | | | | | | | |
|------|------|--------------------|--|----|------|-----|-------------------------------------|--------------------------|--|
| DATE | STEP | PROCEDURE CHANGE | | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector | |
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QA: N/C Closed: _____ Date: _____

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Drawing Name: SKIDTUBE

Job Number: 29665A

Part Number: D204635041

Job Number:



Seq. #:

Machine Or Operation:

Description :

14.0

D25771

Wearplate Fwd



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

| Qty | Part Number | Description | Batch |
|-----|-------------|-------------|-------|
| 1 | D2577-1 | Wearplate | |

15.0

D25773

Wearplate Aft



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

| Qty | Part Number | Description | Batch |
|-----|-------------|-------------|-------|
| 1 | D2577-3 | Wearplate | |

16.0

D25777

Wearplate



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

| Qty | Part Number | Description | Batch |
|-----|-------------|-------------|-------|
| 1 | D2577-7 | Wearplate | |

17.0

D25941

Plug



Comment: Qty.: 10.0000 Each(s)/Unit Total : 10.0000 Each(s)

Pick:

| Qty | Part Number | Description | Batch |
|-----|-------------|-------------|-------|
| 10 | D2594-1 | Plug | |

18.0

D25943

O-Ring



Comment: Qty.: 10.0000 Each(s)/Unit Total : 10.0000 Each(s)

Pick:

| Qty | Part Number | Description | Batch |
|-----|-------------|-------------|-------|
| 10 | D2594-1 | Plug | |

| W/O: | | WORK ORDER CHANGES | | | | | | |
|------|------|--------------------|--|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
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Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | | |
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Drawing Name: SKIDTUBE

Job Number: 29665A

Part Number: D204635041

Job Number:



Seq. #:

Machine Or Operation:

Description :

19.0

D2855

Cap



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)
Cap

20.0

ALS71032130

Insert



Comment: Qty.: 38.0000 Each(s)/Unit Total : 38.0000 Each(s)

Pick:

| Qty | Part Number | Description | Batch |
|-----|---------------|-------------|-------|
| 38 | ALS7-1032-130 | Inserts | |

21.0

AN960JD10L

Washer



Comment: Qty.: 40.0000 Each(s)/Unit Total : 40.0000 Each(s)

Pick:

| Qty | Part Number | Description | Batch |
|-----|-------------|-------------|-------|
| 8 | AN960JD10L | Inserts | |

22.0

AN34A

Bolt



Comment: Qty.: 38.0000 Each(s)/Unit Total : 38.0000 Each(s)

Pick:

| Qty | Part Number | Description | Batch |
|-----|-------------|-------------|-------|
| 38 | AN3-4A | Bolt | |

23.0

AN35A

Bolt



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Bolt

24.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

1-Install inserts & wearplates as per Dwg. D2590. Use a drop of Sikaflex on insert holes before installing wearplates

A/R Sikaflex-291 _____

Sikaflex expire date: _____

| W/O: | | WORK ORDER CHANGES | | | | | | |
|------|------|--------------------|--|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
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Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

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Drawing Name: SKIDTUBE

Job Number: 29665A

Part Number: D204635041

Job Number:



Seq. #:

Machine Or Operation:

Description :

2-Coat D2594-3 O' rings with Petroleum Jelly and install on D2594-1 plugs as per Dwg D2580

3-Inspect for foreign object per QSI 024

4-Install 2855 Aft Cap as per Dwg D2590 and seal Fwd Step & Aft Cap with Sikaflex. Clean excess adhesive

A/R Sikaflex-291 _____

Sikaflex expire date: _____

5-Wing Walk as per Dwg D2590 and QSI 005 4.4

Batch: _____

25.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: Inspect Aft Cap, Fwd Step and Wing Walk of work to Current Step Inspect for Foreign objects per QSI 024

26.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

Job Completion



11/23/06

| W/O: | | WORK ORDER CHANGES | | | | | | |
|------|------|--------------------|--|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | | |
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Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

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NOTE: Date & initial all entries



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|-------------------------------|--------------------------------|---|------------------------|
| DESIGN <i>[Signature]</i> | DRAWN BY <i>[Signature]</i> | DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA | |
| CHECKED <i>[Signature]</i> | APPROVED <i>[Signature]</i> | DRAWING NO. D2590 | REV. C SHEET 1 OF 2 |
| DATE 98.08.28 | | TITLE 204 SKIDTUBE ASSEMBLY | SCALE NTS |
| A | 96.09.16 | NEW ISSUE | |
| B | 96.12.02 | AS MANUFACTURED | |
| C | 98.08.28 | REDRAWN, INCLUDED DEO 9094/9097 | |

RELEASED
98/09/11 DS

| QTY | Part Number | Description |
|-----|---|-------------------|
| X | D2590-041 | SKIDTUBE ASSEMBLY |
| * | D2500-1 | EXTRUSION |
| 1 | D2597 | 204 WEB |
| 1 | D2575 | AFT CAP |
| 1 | D2576-3 | STEP |
| 17 | D2579 | CROSS BOLT SPACER |
| 10 | D2594-1 | PLUG |
| 10 | D2594-3 | O-RING |
| 1 | D2577-1 | WEARSHOE |
| 1 | D2577-3 | WEARSHOE |
| 1 | D2577-7 | WEARSHOE |
| 38 | ALS7-1032-130 or AKS7-1032-130 or AKS4-1032-130 or ALS4-1032-130 | INSERT |
| 40 | AN3-4A | BOLT |
| 40 | AN960JD10L | WASHER |

98.08.28
UP 98.08.28

DEOS
EFFECTIVE
98/12/14

GENERAL NOTES:

- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 2) LENGTH OF D2500-1 EXTRUSION BEFORE BENDING = 189.5 INCHES *
- 3) INSERT D2597 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241 ADHESIVE PER DART QSI 015 BEFORE BENDING. ENSURE HOLES LINE-UP.
- 4) BEND AS A SMOOTH RADIUS STARTING WITH A MAXIMUM CENTERLINE RADIUS OF 60 AND ENDING WITH A MINIMUM RADIUS OF 30. A MAXIMUM REDUCTION OF 0.200 IN DIAMETER IS ALLOWABLE IN THE BENT PORTION OF THE TUBE.
- 5) USE DART DRILL TEMPLATE TD2577-204 TO LOCATE AND DRILL Ø0.297 HOLES FOR WEARSHOE INSERTS. INSTALL ALS7-1032-130 PER SECTION D-D (38 PLACES) AFTER FINISH. INSTALL AN3-4A BOLTS AND AN960JD10L WASHERS WITH SIKAFLEX-241.
- 6) WELDING TO BE DONE PER DART QSI 004.
- 7) FINISH:
ACID ETCH, ALODINE PER DART QSI 005 4.1 PRIOR TO INSERTING D2597 WEB
POWDER COAT ASSEMBLY GLOSS WHITE (REF 4.3.5.1) PER DART QSI 005 4.3
BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4
- 8) INSERT D2594-1 PLUG C/W D2594-3 O-RING IN HOLES MARKED 'P' (BOTH SIDES OF TUBE) AFTER FINISH (10 PLACES).

SHOP COPY
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SUBJECT TO AMENDMENT
WITHOUT NOTICE

A technical diagram of the underside of a component labeled "D2S76". The component has an elongated oval shape with rounded ends. Several points are indicated by small circles or rectangles, each with a leader line pointing to a label. The labels include: "GRIND FLUSH (4 PLACES)" at the top center; "GRIND FLUSH" at the top left; "GRIND FLUSH" at the top right; "LOCATION RIDGE ON UNDERSIDE OF D2S76" on the right side; and "V X" at the bottom right corner. A dashed line runs along the inner edge of the oval.

Technical drawing of a bolted joint assembly. The drawing shows a cross-section of a bolt and nut assembly. The bolt is labeled "AN3-4A BOLT (1)" and the nut is labeled "AN96QD10L WASHER (1) (2 PLACES)". The bolt is secured with a "D2575 CAP" (cover cap). The assembly is sealed with "SEAL WITH SIKAFLEX-241". The drawing includes a dimension of "0.40" for the distance from the center of the bolt to the edge of the cap. The drawing is labeled "UNCON SUBC" and "WT".

D2579 SPACER

WEB (REF)

-130 (REF)
58 PLACES

5

[illegible]

D2390-041 ASSEMBLY DETAIL

WELD AS PER DETAIL B

BLACK ANTI-SKID TOP OF STEP TO 0.5 ABOVE BOTTOM EDGE

BLACK ANTI-SKID TO 0.5 ABOVE LOCATION RIDGE

0.5

1.5

1.5

D

P

P

P

P

1.5

1.5

REFER TO DETAIL C

D2577-3


D2577-7

D2577-1

AN3-4A BOLT (1)
AN960JD10L WASHER (1)
(38 PLACES)

8

RE

| | | | |
|-----------------------|-----------------------|--|------------------------|
| DESIGN <i>RAF</i> | DRAWN BY <i>CF</i> |  DART AEROSPACE LTD HARRISBURY, ONTARIO, CANADA | |
| CHECKED <i>RAF</i> | APPROVED | DRAWING NO. D2590 | REV. C SHEET 2 OF 2 |
| DATE 98.08.28 | | TITLE 204 SKIDTUBE ASSEMBLY | SCALE 1:24 |

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98/09/17 BS

